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S P O K A N E C O U N T Y



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RECEIVED
JUN 12 1997
Environmental Cleanup Office

6/10/97

Attn: Mr. Michael Kuntz

RE: RESPONSE TO ECOLOGY LETTERS ON COLBERT LANDFILL



Dear Mr. Kuntz:

This letter is in response to your letters that were prepared in follow up to our April 3, 1997 meeting at the Colbert Landfill site. Subsequent to receipt of your letters, a conference call was held on April 23, 1997 between the Washington State Department of Ecology, the U. S. Environmental Protection Agency (EPA), Spokane County, and Landau Associates personnel to clarify some of the issues raised.

Your letter dated April 9, 1997 regarding the Colbert Landfill meeting of April 3, identifies a number of concerns and requests a significant amount of additional information, and identifies specific dates by which certain actions must be implemented or information provided to Ecology. As discussed in our conference call, Spokane County will address Ecology's requests as expeditiously as possible, but we will not be able to provide all of the information requested by the dates identified in your letter.

Your letter raises several issues related to the County's intent to replace the target drawdown method described in the August 1994 draft of the Colbert Landfill RD/RA Operations and Maintenance (O&M) Plan with the flow line analysis method described in the January 31, 1997 draft of the O&M Plan. We are surprised and concerned that your letter indicated a much greater level of concern regarding this planned modification to the O&M Plan than was conveyed during our meeting. We are also concerned that Ecology appears to be equating the difficulties in implementing the originally planned target drawdown method with the failure of the system to achieve capture. We are committed to addressing Ecology's concerns, but strongly disagree with the conclusions that Ecology appears to be drawing regarding the performance of the groundwater extractions system and the intent (and applicability) of the proposal flow line analysis method.

The first paragraph of your letter requires Spokane County to immediately increase pumping in an attempt to "overcome the water problem in the lower aquifer", or provide a rationale and technical justification for not doing so by April 21, 1997. First, as we discussed in our April 17, 1997 telephone conversation, the groundwater extraction system is presently operating at full capacity and flow rates cannot be increased. More importantly, the difficulty with application of the target drawdown method is related to regional fluctuations in the groundwater elevations that result from greater than normal precipitation over the last 2 years and are not indicative of a "water problem" in the lower aquifer or an indication that the lower aquifer extraction system is not achieving capture. Further, the consent decree identifies specific groundwater quality criteria that provide the basis upon which, if exceeded, Ecology and EPA could require Spokane County to adjust or modify the groundwater extraction system (i.e., operational and adjustment control criteria), and these criteria have not been exceeded. Based on these considerations, increase of the pumping rates is not feasible, nor is it warranted.

In your second paragraph, you request plots of water elevation data versus time for all lower aquifer extraction wells to evaluate whether the water level fluctuations are a localized, or regional, influence. As clarified during our April 23 conference call, it is actually monitoring well data that are most relevant to this issue. Figure 1 presents time versus groundwater elevation data for all lower aquifer compliance monitoring well locations, and Figure 2 presents similar information for other selected lower aquifer monitoring wells. Figure 3 presents a plan view of regional water elevation differences between prepumping water elevations and the recent April 1997 measurements. All of these figures illustrate that the increase in water elevations over about the last 2 years is a regional occurrence.

As discussed in our April 23, 1997 conference call, the third paragraph (partially complete) was inadvertently included and is not relevant to this project. As such, Spokane County is not required to address the identified issue.

The fourth paragraph of the your letter reiterates the goal of the consent decree to achieve groundwater capture and indicates that Ecology does not believe that the proposed flow line analysis method "works toward" this goal. While we agree that a goal of the consent decree is to achieve capture of contaminated groundwater above the specified criteria, we do not believe the proposed flow line analysis method is directly related to evaluating achievement of this goal. As previously discussed, concentration-based criteria are the basis upon which conformance with the requirements of the consent decree is evaluated, including assessment of whether adequate capture is being achieved. The flow line analysis (and, previously, the target drawdown approach) is intended as a day-to-day management tool for the system operator (Spokane County), not as a basis for monitoring compliance with the consent decree.

Based on our April 23 conference call, it does not appear that Ecology necessarily considers the proposed flow line approach not working towards capture, but does not consider it sufficiently quantifiable to ensure an unbiased assessment of capture. Given the intended use of the information (day-to-day operational adjustment), it should be Spokane County's decision as to which method is the most useful. However, Ecology does have a valid point regarding the flow line analysis requiring a significant level of judgement and expertise, and it may be difficult for the facility operator to implement without significant assistance from a hydrogeologist. As a result, we

have developed a refinement to the target drawdown approach that appears to successfully filter out the regional water elevation fluctuations, and propose to implement this approach on a trial basis. The approach consists of subtracting the regional water level change subsequent to system startup from monitoring wells in the extraction system vicinity prior to estimating drawdown, based on the average water level change for 2 wells located outside the probable zone of interception system influence. As illustrated on Figure 4 for a relatively low water elevation period (September 1995), and Figure 5 for a high water elevation period (April 1997), this approach appears to provide reasonable and consistent results for assessment of lower aquifer drawdown. Figure 6 illustrates this approach for a high water period for the upper aquifer, and while this also appears to provide reasonable results, the resulting data are not as consistent as for the lower aquifer. It should be recognized that the attached figures were quickly developed for this letter; these figures will be refined to incorporate into subsequent documents.

In the fifth paragraph of your letter, the issue is raised regarding when Spokane County first informed EPA and Ecology about the difficulties with the target drawdown method. Spokane County reported difficulty in applying the target drawdown method in the third quarter 1996 progress report. Spokane County did not feel that more timely notification was necessary because of the intended use of the target drawdown method (day-to-day operational adjustment).

We strongly disagree with Ecology's statement in the fifth paragraph that Ecology does not believe capture has been provided in the lower aquifer for several months and that the lower aquifer extraction system is not achieving capture. All the water quality and water elevation data collected to date supports the conclusion that capture is being achieved in the lower aquifer. The fact that the target drawdown method is not effective for assessing extraction system induced drawdown, without the modifications previously described, is not a reasonable basis to conclude that capture is not being achieved.

Ecology also indicated in the fifth paragraph that information is not being provided (by Spokane County) in a timely manner and there is inadequate communication. Please remember that Spokane County has 90 days following the end of a quarter to complete the progress report. We attempt to maintain open and frequent contact with EPA and Ecology on the project and do not believe a disagreement regarding the manner in which EPA and Ecology were informed of the target drawdown issue is a general indication of inadequate communication, particularly since Spokane County does not consider this to be as significant an issue as does Ecology.

We look forward to working with EPA and Ecology to alleviate any remaining concerns regarding the use of the modified target drawdown method, or other approaches subsequently determined to be appropriate, for day-to-day management of extraction system operation. However, we want to reiterate our understanding that regardless of the method used, the basis for these management decisions (and the adjustments themselves) are independent of the consent decree operational requirements, provided the County continues to meet the concentration-based performance criteria specified in the consent decree.

Ecology's letter dated April 9, 1997 regarding landfill inspection and ditch infiltration, indicated a level of concern regarding the unlined portion of the perimeter ditch which provides some area of surface runoff from the Colbert Landfill cover system. In the first paragraph, you stated all runoff in the surface water collection system finds its way into the unlined portion of the western, downgradient ditch. The mentioned ditch does not receive all

of the landfill runoff as your letter states, but only a portion. In this letter the two concerns that were raised about the unlined portion of the western downgradient ditch were: a) possible dilution of the shallow aquifer and, b) possible source of recharge to the lower aquifer. With regards to dilution in the shallow aquifer, Spokane County strongly disagrees that this ditch presents a problem because the closest proximity of any upper aquifer monitoring well to the west side unlined ditch is approximately 100 yards upgradient, thus any infiltration into the upper aquifer as a result of the unlined ditch should not affect areas near monitoring wells. Spokane County does not accept the idea that any additional groundwater is being introduced into the upper aquifer that would not have been supplied prior to the cover system installation, and therefore does not recognize dilution of the upper aquifer as a concern. With regards to the concern of the unlined ditch acting as a source of recharge to the lower or deep aquifer in our conference call on April 23, 1997, we agreed that the lower aquifer would not be affected since there is a confining layer between the shallow and deep aquifer.

With regards to Ecology's concerns pertaining to design of this ditch in your letter dated April 17, 1997, ample opportunity was given for Ecology to comment prior to cover installation. In response to Ecology's issues raised over the unlined portion of ditch providing surface runoff from the Colbert Landfill cover system, Spokane County is committed to addressing Ecology's concerns, but disagrees with the conclusion that the surface runoff passing into the unlined ditch will either dilute or adversely impact the groundwater flow in the upper aquifer and therefore, a demonstration into this issue is not warranted.

Please contact me if you require additional information or wish to discuss these issues further.

Sincerely,



Bill Wedlake
Spokane County Utilities Department

cc: Neil Thompson, EPA
Larry Beard, Landau Associates

Groundwater Elevations vs. Time

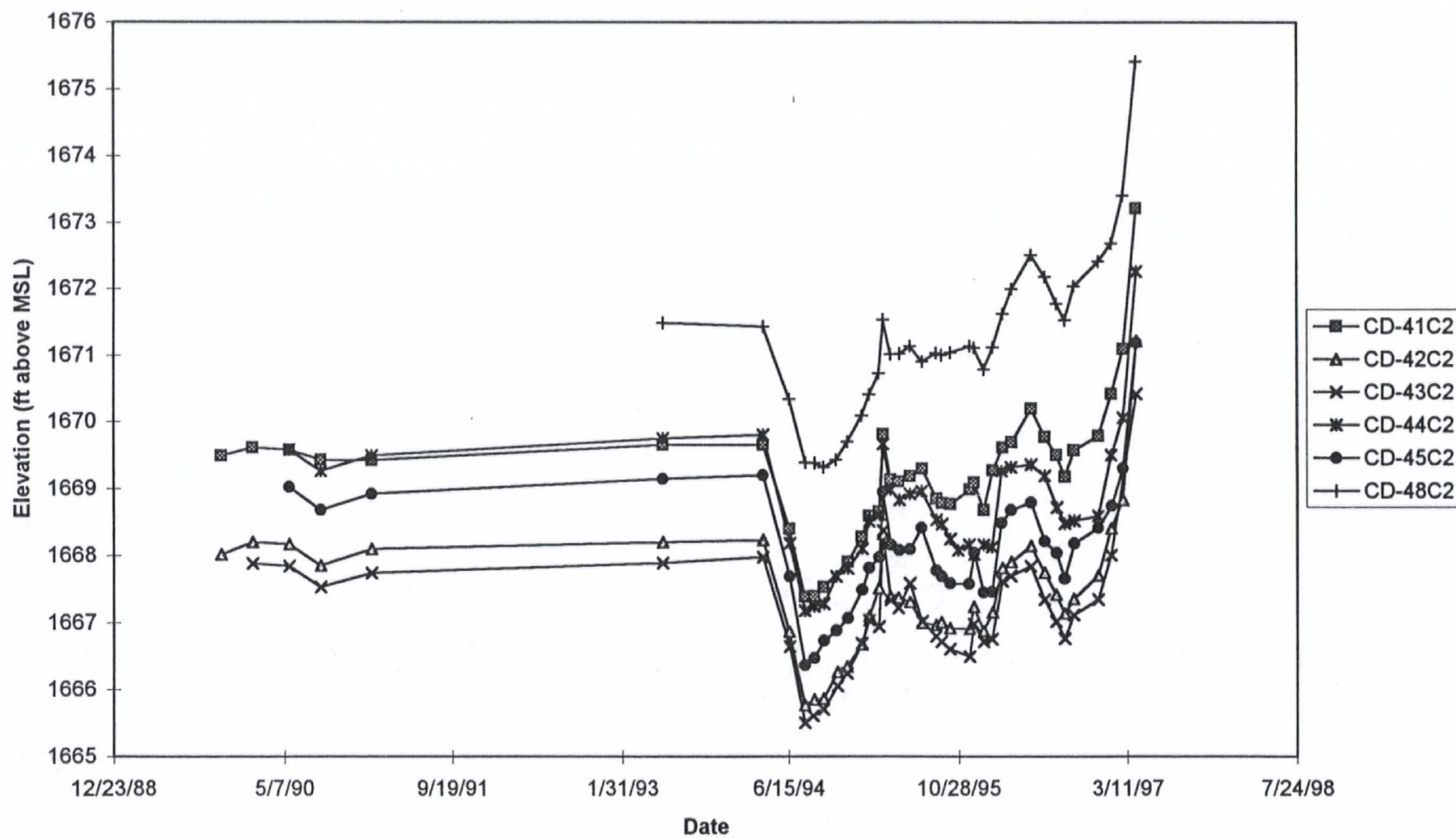


FIGURE 1

Groundwater Elevations vs. Time

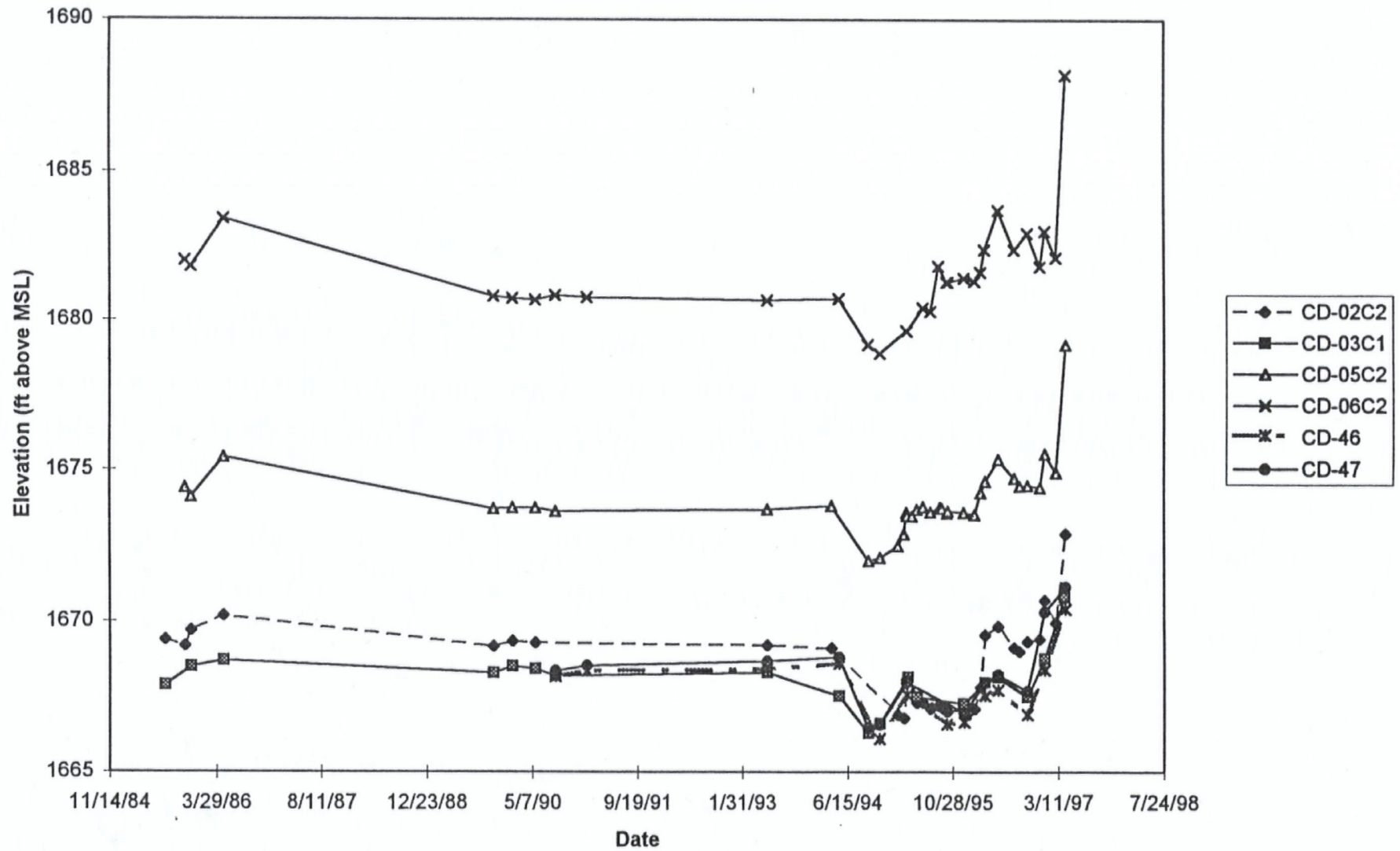


FIGURE 2

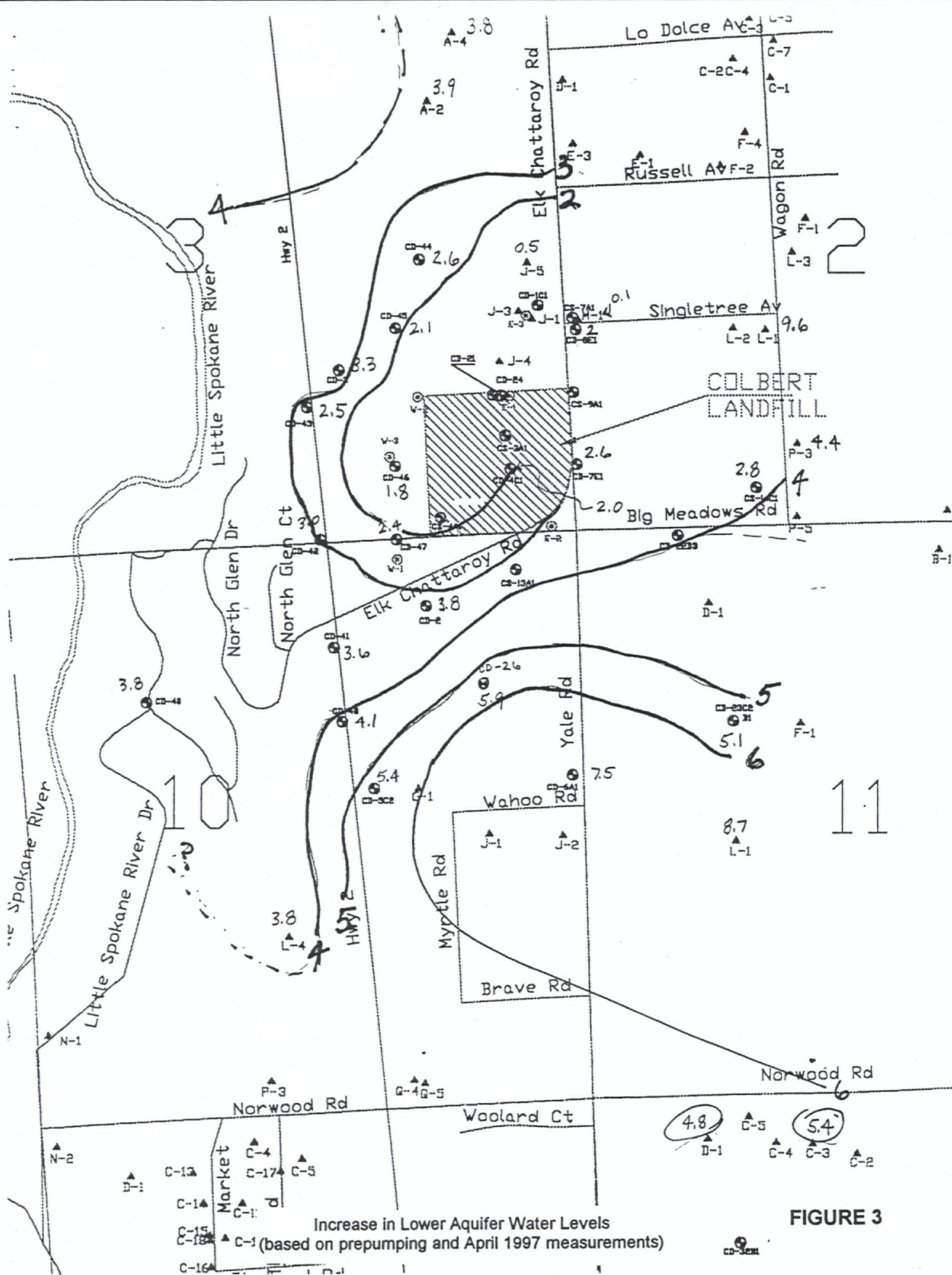
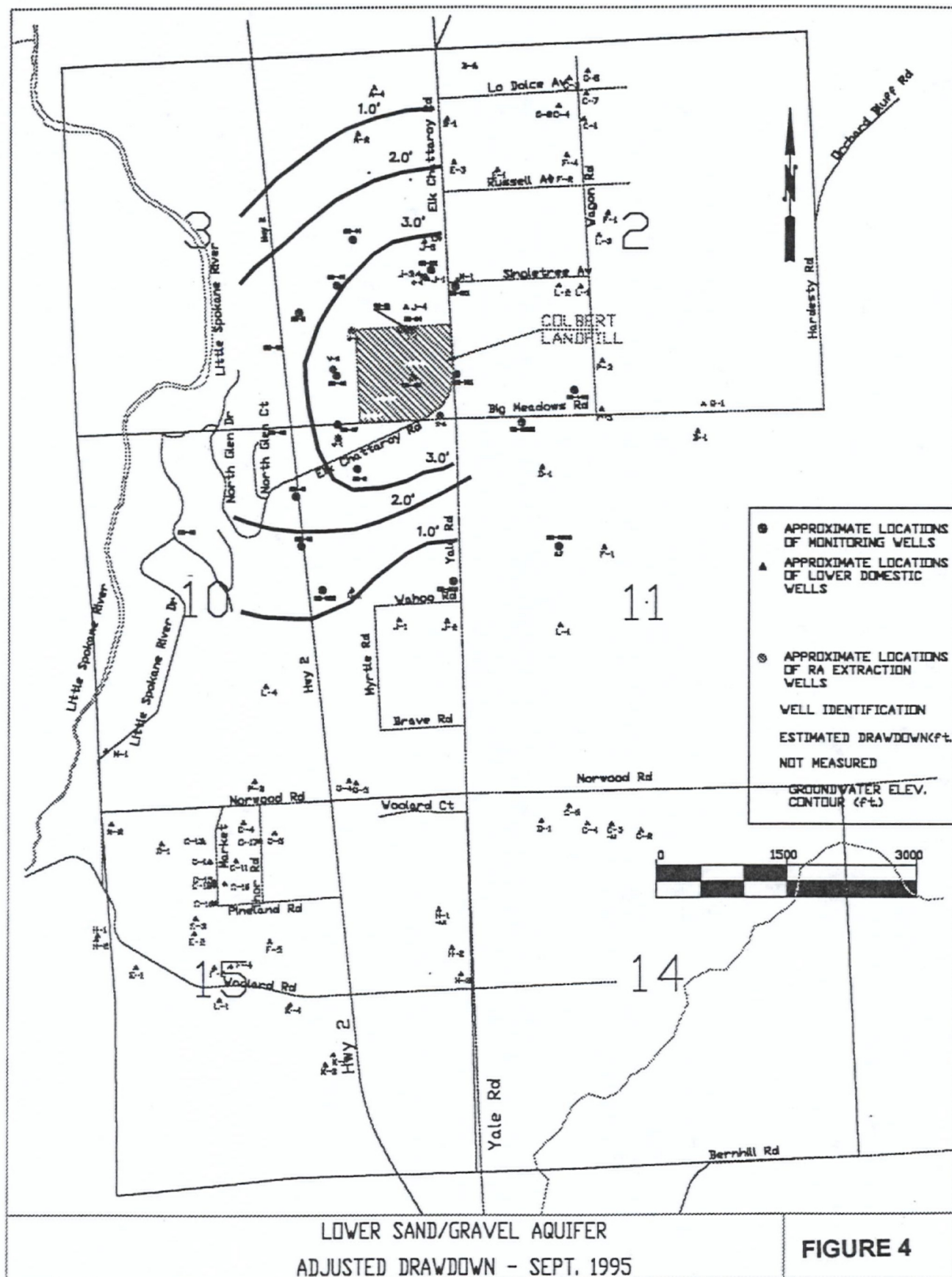
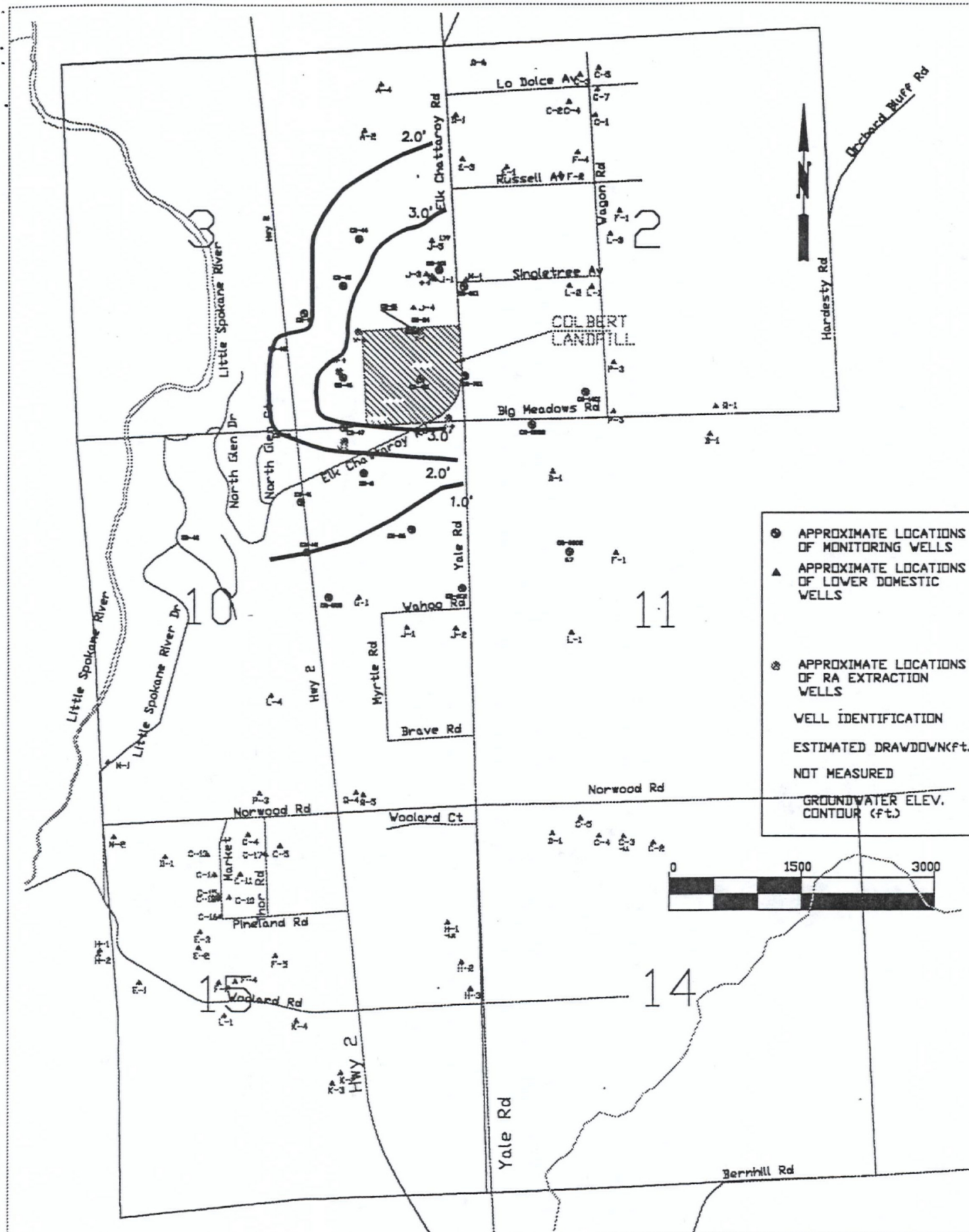


FIGURE 3





LOWER SAND/GRAVEL AQUIFER
ADJUSTED DRAWDOWN - APRIL 1997

FIGURE 5

